Contents

VOLUME 14 NUMBER 1

MicroReview

1 **Prokaryotic HU and eukaryotic HMG1: a kinked relationship**
M. E. Bianchi

Research Articles

7 **Altered pH and lysine signalling mutants of *cadC*, a gene encoding a membrane-bound transcriptional activator of the *Escherichia coli cadBA* operon**
C. L. Dell, M. N. Neely & E. R. Olson

17 **Transcriptional control of *toxT*, a regulatory gene in the ToxR regulon of *Vibrio cholerae***
D. E. Higgins & V. J. DiRita

31 **Mutational analysis of the pseudoknot structure of the S15 translational operator from *Escherichia coli***
L. Bénard, C. Philippe, L. Dondon, M. Grunberg-Manago, B. Ehresmann & C. Portier

41 **Common features of the NAD-binding and catalytic site of ADP-ribosylating toxins**
M. Domenighini, C. Magagnoli, M. Pizza & R. Rappuoli

51 **Probing the structure–activity relationship of *Escherichia coli* LT-A by site-directed mutagenesis**
M. Pizza, M. Domenighini, W. Hol, V. Gianelli, M. R. Fontana, M. M. Giuliani, C. Magagnoli, S. Peppoloni, R. Manetti & R. Rappuoli

61 **New clusters of genes for gliding motility in *Myxococcus xanthus***
S. D. MacNeil, F. Calara & P. L. Hartzell

73 **Information essential for cell-cycle-dependent secretion of the 591-residue *Caulobacter* hook protein is confined to a 21-amino-acid sequence near the *N*-terminus**
M. G. Kornacker & A. Newton

87 **Expression of seven members of the gene family encoding secretory aspartyl proteinases in *Candida albicans***
B. Hube, M. Monod, D. A. Schofield, A. J. P. Brown & N. A. R. Gow

101 **The FeSII protein of *Azotobacter vinelandii* is not essential for aerobic nitrogen fixation, but confers significant protection to oxygen-mediated inactivation of nitrogenase *in vitro* and *in vivo***
F. Moshiri, J. W. Kim, C. Fu & R. J. Maier

115 **Proteolytic cleavage and cell wall anchoring at the LPXTG motif of surface proteins in Gram-positive bacteria**
W. W. Navarre & O. Schneewind

123 **Molecular characterization of catalase from *Bordetella pertussis*: identification of the *katA* promoter in an upstream insertion sequence**
D. DeShazer, G. E. Wood & R. L. Friedman

131 **IS*231*A insertion specificity: consensus sequence and DNA bending at the target site**
B. Hallet, R. Rezsöhazy, J. Mahillon & J. Delcour

141 **Molecular analysis of the biosynthesis pathway of the α-2,8 polysialic acid capsule by *Neisseria meningitidis* serogroup B**
U. Edwards, A. Müller, S. Hammerschmidt, R. Gerardy-Schahn & M. Frosch

151 ***Escherichia coli tyrT* gene transcription is sensitive to DNA supercoiling in its native chromosomal context: effect of DNA topoisomerase IV overexpression on *tyrT* promoter function**
A. Free & C. J. Dorman

163 **Repeated polyketide synthase modules involved in the biosynthesis of a heptaene macrolide by *Streptomyces* sp. FR-008**
Z. Hu, K. Bao, X. Zhou, Q. Zhou, D. A. Hopwood, T. Kieser & Z. Deng

173 **Distinct mechanisms of interactions of Opc-expressing meningococci at apical and basolateral surfaces of human endothelial cells; the role of integrins in apical interactions**
M. Virji, K. Makepeace & E. R. Moxon

MicroCorrespondence

185 **Czc/Cnr efflux: a three-component chemiosmotic antiport pathway with a 12-transmembrane-helix protein**
Q. Dong & M. Mergeay

188 **From sequence alignment to structure prediction: the case of the OmpF porin family**
T. Ferenci

VOLUME 14 NUMBER 2

MicroReviews

191 **Iron, DtxR, and the regulation of diphtheria toxin expression**
X. Tao, N. Schiering, H. Zeng, D. Ringe & J. R. Murphy

199 **Building bridges: disulphide bond formation in the cell**
J. C. A. Bardwell

Research Articles

207 **The RTX haemolysins ApxI and ApxII are major virulence factors of the swine pathogen *Actinobacillus pleuropneumoniae*: evidence from mutational analysis**
R. I. Tascón, J. A. Vázquez-Boland, C. B. Gutiérrez-Martín, I. Rodríguez-Barbosa & E. F. Rodríguez-Ferri

217 **A *Haemophilus influenzae* IgA protease-like protein promotes intimate interaction with human epithelial cells**
J. W. St. Geme, III, M. L. de la Morena & S. Falkow

235 **Identification and characterization of an intervening sequence within the 23S ribosomal RNA genes of *Campylobacter jejuni***
M. E. Konkel, R. T. Marconi, D. J. Mead & W. Cieplak, Jr

243 **Growth and viability of *Streptomyces coelicolor* mutant for the cell division gene *ftsZ***
J. R. McCormick, E. P. Su, A. Driks & R. Losick

255 **Proximal and distal sites bind LuxR independently and activate expression of the *Vibrio harveyi lux* operon**
C. M. Miyamoto, E. E. Smith, E. Swartzman, J.-G. Cao, A. F. Graham & E. A. Meighen

263 **Observations on the formation of deletions on monomeric and dimeric plasmids in *Escherichia coli***
P. Ravn, M. Givskov, K.-M. Eegholm, S. M. Madsen & L. Boe

271 **Characterization of trimethoprim- and sulphisoxazole-resistant *Chlamydia trachomatis***
L. L. Wang, E. Henson & G. McClarty

283 **Permeability of the cell wall of *Mycobacterium smegmatis***
J. Trias & R. Benz

291 **Analysis of the *rnc* locus of *Coxiella burnetii***
M. Zuber, T. A. Hoover, B. S. Powell & D. L. Court

301 **Strain variation in the *katG* region of *Mycobacterium tuberculosis***
Y. Zhang & D. Young

309 **The tail of a chaperonin: the *C*-terminal region of *Escherichia coli* GroEL protein**
N. F. McLennan, S. McAteer & M. Masters

323 **Overexpression of *flbA*, an early regulator of *Aspergillus* asexual sporulation, leads to activation of *brlA* and premature initiation of development**
B. N. Lee & T. H. Adams

335 **Multiple protein–DNA and protein–protein interactions are involved in transcriptional activation by MalT**
O. Danot & O. Raibaud

347 ***Klebsiella pneumoniae* genes for citrate lyase and citrate lyase ligase: localization, sequencing, and expression**
M. Bott & P. Dimroth

357 **Mutants at conserved positions in gene IV, a gene required for assembly and secretion of filamentous phages**
M. Russel

371 ***Neisseria gonorrhoeae* acquires mutations in analogous regions of *gyrA* and *parC* in fluoroquinolone-resistant isolates**
R. J. Belland, S. G. Morrison, C. Ison & W. M. Huang

381 **Elucidation of the mechanism of CryIIIA overproduction in a mutagenized strain of *Bacillus thuringiensis* var. *tenebrionis***
L. F. Adams, S. Mathewes, P. O'Hara, A. Petersen & H. Gürtler

VOLUME 14 NUMBER 3

MicroReview

391 **Biosynthesis and functional role of haem O and haem A**
T. Mogi, K. Saiki & Y. Anraku

Research Articles

399 **The amino-terminal domain of the P-pilus adhesin determines receptor specificity**
D. B. Haslam, T. Borén, P. Falk, D. Ilver, A. Chou, Z. Xu & S. Normark

411 **Characterization of *spo0A* homologues in diverse *Bacillus* and *Clostridium* species identifies a probable DNA-binding domain**
D. P. Brown, L. Ganova-Raeva, B. D. Green, S. R. Wilkinson, M. Young & P. Youngman

427 **The FinO protein of IncF plasmids binds FinP antisense RNA and its target, *traJ* mRNA, and promotes duplex formation**
T. van Biesen & L. S. Frost

437 **Multicopy single-stranded DNAs with mismatched base pairs are mutagenic in *Escherichia coli***
W. K. Maas, C. Wang, T. Lima, G. Zubay & D. Lim

443 **Plasminogen, absorbed by *Escherichia coli* expressing curli or by *Salmonella enteritidis* expressing thin aggregative fimbriae, can be activated by simultaneously captured tissue-type plasminogen activator (t-PA)**
U. Sjöbring, G. Pohl & A. Olsén

453 **High-frequency S-layer protein variation in *Campylobacter fetus* revealed by *sapA* mutagenesis**
M. J. Blaser, E. Wang, M. K. R. Tummuru, R. Washburn, S. Fujimoto & A. Labigne

463 **The pAMβ1 CopF repressor regulates plasmid copy number by controlling transcription of the *repE* gene**
E. Le Chatelier, S. D. Ehrlich & L. Jannière

473 **The *copR* gene product of plasmid pIP501 acts as a transcriptional repressor at the essential *repR* promoter**
S. Brantl

485 **Early stages in development of the *Escherichia coli* cell-division site**
W. R. Cook & L. I. Rothfield

497 **Development of the cell-division site in FtsA$^-$ filaments**
W. R. Cook & L. I. Rothfield

505 **Identification of an ATP-binding cassette transport system required for translocation of lipopolysaccharide O-antigen side-chains across the cytoplasmic membrane of *Klebsiella pneumoniae* serotype O1**
D. Bronner, B. R. Clarke & C. Whitfield

521 **Mode of action of LciA, the lactococcin A immunity protein**
K. Venema, R. E. Haverkort, T. Abee, A. J. Haandrikman, K. J. Leenhouts, L. de Leij, G. Venema & J. Kok

533 **The mRNA for the 23S rRNA methylase encoded by the *ermE* gene of *Saccharopolyspora erythraea* is translated in the absence of a conventional ribosome-binding site**
M. J. Bibb, J. White, J. M. Ward & G. R. Janssen

547 **High-frequency homologous plasmid–plasmid recombination coupled with conjugation of plasmid SCP2* in *Streptomyces***
J. Xiao, R. E. Melton & T. Kieser

557 **Identification of genes involved in the sequestration of iron in mycobacteria: the ferric exochelin biosynthetic and uptake pathways**
E. H. Fiss, S. Yu & W. R. Jacobs, Jr

571 **Identification of IS*1206*, a *Corynebacterium glutamicum* IS*3*-related insertion sequence and phylogenetic analysis**
C. Bonamy, J. Labarre, O. Reyes & G. Leblon

583 **Translocation of a hybrid YopE–adenylate cyclase from *Yersinia enterocolitica* into HeLa cells**
M.-P. Sory & G. R. Cornelis

MicroCorrespondence

595 **The SphX protein of *Synechococcus* species PCC 7942 belongs to a family of phosphate-binding proteins**
N. H. Mann & D. J. Scanlan

VOLUME 14 NUMBER 4

MicroReview

597 **Significance of plasmolysis spaces as markers for periseptal annuli and adhesion sites**
C. L. Woldringh

Research Articles

609 **Lipooligosaccharide biosynthesis in *Neisseria gonorrhoeae*: cloning, identification and characterization of the α1,5 heptosyltransferase I gene (*rfaC*)**
D. Zhou, N.-G. Lee & M. A. Apicella

619 **Non-congruent relationships between variation in *emm* gene sequences and the population genetic structure of group A streptococci**
A. M. Whatmore, V. Kapur, D. J. Sullivan, J. M. Musser & M. A. Kehoe

633 **NarL-phosphate must bind to multiple upstream sites to activate transcription from the *narG* promoter of *Escherichia coli***
M. S. Walker & J. A. DeMoss

643 ***afsR2*: a previously undetected gene encoding a 63-amino-acid protein that stimulates antibiotic production in *Streptomyces lividans***
M. Vögtli, P.-C. Chang & S. N. Cohen

655 **Common ancestry between IncN conjugal transfer genes and macromolecular export systems of plant and animal pathogens**
R. F. Pohlman, H. D. Genetti & S. C. Winans

669 **Purification of a MalE–SoxS fusion protein and identification of the control sites of *Escherichia coli* superoxide-inducible genes**
W. P. Fawcett & R. E. Wolf, Jr

681 **Characterization and occurrence of two repeated palindromic DNA elements of *Brucella* spp.: Bru-RS1 and Bru-RS2**
S. M. Halling & B. J. Bricker

691 **Non-motile mutants of *Helicobacter pylori* and *Helicobacter mustelae* defective in flagellar hook production**
P. W. O'Toole, M. Kostrzynska & T. J. Trust

705 **The *ccoNOQP* gene cluster codes for a *cb*-type cytochrome oxidase that functions in aerobic respiration of *Rhodobacter capsulatus***
L. Thöny-Meyer, C. Beck, O. Preisig & H. Hennecke

717 **A protein complex mediating mRNA degradation in *Escherichia coli***
B. Py, H. Causton, E. A. Mudd & C. F. Higgins

731 **mRNA degradation in *Escherichia coli*: a novel factor which impedes the exoribonucleolytic activity of PNPase at stem-loop structures**
H. Causton, B. Py, R. S. McLaren & C. F. Higgins

743 **Cell-surface-associated polypeptides CshA and CshB of high molecular mass are colonization determinants in the oral bacterium *Streptococcus gordonii***
R. McNab, H. F. Jenkinson, D. M. Loach & G. W. Tannock

755 **Transmembrane signalling by the chimeric chemosensory receptors of *Escherichia coli* Tsr and Tar with heterologous membrane-spanning regions**
I. Tatsuno, L. Lee, I. Kawagishi, M. Homma & Y. Imae

763 **SeqA limits DnaA activity in replication from *oriC* in *Escherichia coli***
U. von Freiesleben, K. V. Rasmussen & M. Schaechter

773 **Multiple roles for DNA polymerase I in establishment and replication of the promiscuous plasmid pLS1**
A Díaz, S. A. Lacks & P. López

785 **Genes required for both gliding motility and development in *Myxococcus xanthus***
S. D. MacNeil, A. Mouzeyan & P. L. Hartzell

797 **The *Legionella pneumophila icm* locus: a set of genes required for intracellular multiplication in human macrophages**
B. C. Brand, A. B. Sadosky & H. A. Shuman

809 **Altered intracellular targeting properties associated with mutations in the *Legionella pneumophila dotA* gene**
K. H. Berger, J. J. Merriam & R. R. Isberg

823 **Requirement of the regulatory protein NtcA for the expression of nitrogen assimilation and heterocyst development genes in the cyanobacterium *Anabaena* sp. PCC 7120**
J. E. Frías, E. Flores & A. Herrero

833 **Transcriptional attenuation control of the tylosin-resistance gene *tlrA* in *Streptomyces fradiae***
G. H. Kelemen, M. Zalacain, E. Culebras, E. T. Seno & E. Cundliffe

VOLUME 14 NUMBER 5

MicroReview

843 **Iron piracy: acquisition of transferrin-bound iron by bacterial pathogens**
C. N. Cornelissen & P. F. Sparling

Research Articles

851 **Specificity domain localization of *Bacillus thuringiensis* insecticidal toxins is highly dependent on the bioassay system**
L. Masson, A. Mazza, L. Gringorten, D. Baines, V. Aneliunas & R. Brousseau

861 **Successive action of *Escherichia coli* chaperones *in vivo***
G. A. Gaitanaris, A. Vysokanov, S.-C. Hung, M. E. Gottesman & A. Gragerov

871 **Topological and mutational analysis of KpsM, the hydrophobic component of the ABC-transporter involved in the export of polysialic acid in *Escherichia coli* K1**
R. P. Pigeon & R. P. Silver

883 **Isolation of motile and non-motile insertional mutants of *Campylobacter jejuni*: the role of motility in adherence and invasion of eukaryotic cells**
R. Yao, D. H. Burr, P. Doig, T. J. Trust, H. Niu & P. Guerry

895 **Amoebapores, a family of membranolytic peptides from cytoplasmic granules of *Entamoeba histolytica*: isolation, primary structure, and pore formation in bacterial cytoplasmic membranes**
M. Leippe, J. Andrä, R. Nickel, E. Tannich & H.J. Müller-Eberhard

905 **Regulation of the *Yersinia enterocolitica* enterotoxin Yst gene. Influence of growth phase, temperature, osmolarity, pH and bacterial factors**
A. V. Mikulskis, I. Delor, V. Ha Thi & G. R. Cornelis

917 **Cloning and disruption of the gene encoding an extracellular metalloprotease of *Aspergillus fumigatus***
K. Jaton-Ogay, S. Paris, M. Huerre, M. Quadroni, R. Falchetto, G. Togni, J.-P. Latgé & M. Monod

929 **Signal-sensing mechanisms of the putative osmosensor KdpD in *Escherichia coli***
A. Sugiura, K. Hirokawa, K. Nakashima & T. Mizuno

939 **Characterization of a gene responsible for the Na^+/H^+ antiporter system of alkalophilic *Bacillus* species strain C-125**
T. Hamamoto, M. Hashimoto, M. Hino, M. Kitada, Y. Seto, T. Kudo & K. Horikoshi

947 **Ribosomal protein methylation in *Escherichia coli*: the gene *prmA*, encoding the ribosomal protein L11 methyltransferase, is dispensable**
A. Vanet, J. A. Plumbridge, M.-F. Guérin & J.-H. Alix

959 ***Helicobacter pylori hspA–hspB* heat-shock gene cluster: nucleotide sequence, expression, putative function and immunogenicity**
S. Suerbaum, J.-M. Thiberge, I. Kansau, R. L. Ferrero & A. Labigne

975 **The site-specific recombination system regulating expression of the Type 1 fimbrial subunit gene of *Escherichia coli* is sensitive to changes in DNA supercoiling**
S. L. Dove & C. J. Dorman

989 **The gene encoding the periplasmic cyclophilin homologue, PPIase A, in *Escherichia coli*, is expressed from four promoters, three of which are activated by the cAMP–CRP complex and negatively regulated by the CytR repressor**
M. Nørregaard-Madsen, B. Mygind, R. Pedersen, P. Valentin-Hansen & L. Søgaard-Andersen

999 **Nucleotide sequence, organization and expression of *rdgA* and *rdgB* genes that regulate pectin lyase production in the plant pathogenic bacterium *Erwinia carotovora* subsp. *carotovora* in response to DNA-damaging agents**
Y. Liu, A. Chatterjee & A. K. Chatterjee

1011 **The *sss* gene product, which affects pyoverdin production in *Pseudomonas aeruginosa* 7NSK2, is a site-specific recombinase**
M. Höfte, Q. Dong, S. Kourambas, V. Krishapillai, D. Sherratt & M. Mergeay

1021 **Expression of the genes coding for the *Escherichia coli* integration host factor are controlled by growth phase, *rpoS*, ppGpp and by autoregulation**
M. Aviv, H. Giladi, G. Schreiber, A. B. Oppenheim & G. Glaser

1033 **Control of translation by mRNA secondary structure: the importance of the kinetics of structure formation**
C. K. Ma, T. Kolesnikow, J. C. Rayner, E. L. Simons, H. Yim & R. W. Simons

1049 **PilR, a transcriptional regulator of piliation in *Pseudomonas aeruginosa*, binds to a *cis*-acting sequence upstream of the pilin gene promoter**
S. Jin, K. S. Ishimoto & S. Lory

1059 **Immunobiology of purified recombinant outer membrane porin protein I of *Neisseria gonorrhoeae***
C. Elkins, K. B. Barkley, N. H. Carbonetti, A. J. Coimbre & P. F. Sparling

1077 **The dipeptide permease of *Escherichia coli* closely resembles other bacterial transport systems and shows growth-phase-dependent expression**
W. N. Abouhamad & M. D. Manson

1093 **Partial purification of the rat erythrocyte receptor for the channel-forming toxin aerolysin and reconstitution into planar lipid bilayers**
H. J. Gruber, H. U. Wilmsen, S. Cowell, H. Schindler & J. T. Buckley

Corrigendum

1103 **The chromosomal DNA of *Streptomyces lividans* 66 is linear**
Y.-S. Lin, H. M. Kieser, D. A. Hopwood & C. W. Chen

Erratum

1103 **Sequence changes in the pilus subunit lead to tropism variation of *Neisseria gonorrhoeae* to human tissue**
A.-B. Jonsson, D. Ilver, J. Pepose & S. Normark

Indexes

1107 **Keyword Index**

1111 **Author Index**